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BIOFUEL

Objective: to study biofuels as one of the methods for solving environmental problems.

The following task: consider different types of biofuels and their use in everyday life.

Object: the possibility of using biofuels to reduce greenhouse gas emissions into the atmosphere.

Research methods: literature review with a scientific explanation of biofuel production and its capabilities.

Scientific novelty and practical significance of the results: The scientific novelty of the work lies in the fact that the study of different types of biofuels and their farther introduction into our lives can be an effective solution to the problem of global warming.

WHAT IS BIOFUEL?

The word biofuel itself has been heard by many people, but few really wondered what it is made of. Biofuel - fuel from plant or animal raw materials, from the waste products of organisms or organic industrial waste.

SEVERAL TYPES OF BIOFUELS

1. Solid biofuels.

Ordinary firewood is known to people from ancient times and is actively used to this day. For their production, special energy forests are grown, consisting of fast-growing species (poplar, eucalyptus, willow), and they use the wood that is unsuitable for construction and decorative purposes. With the development of technology, fuel briquettes and granules (pellets) appeared, consisting of compressed

woodworking waste - sawdust and husk. When they are burned, one and a half times more energy is released than when ordinary wood is burned, but almost two times less than when coal is burned. Dried manure, straw and peat are also used as sources of cheap energy. Solid biofuel makes up almost 60% of the total biofuel produced - about 38% of the population uses it for domestic purposes.

2. Liquid biofuel.

Bioethanol (ethyl alcohol) serves as an alternative to gasoline, or in addition to it to reduce the amount of exhaust gases. In some countries, the use of ethanol as an additive to gasoline has been approved by law to reduce oil consumption. A prime example is Brazil, a leader in the production and use of sugarcane bioethanol as a fuel. In the US, bioethanol is produced primarily from corn. Liquid biofuels also include methanol and butanol, dimethyl ether and biodiesel, a motor fuel based on animal and vegetable fats.

3. Gaseous biofuel.

During the fermentation of biological mass, a large amount of biogas - a mixture of methane and carbon monoxide - is released, which is also used as fuel for domestic and industrial needs. A method for producing biohydrogen by the action of bacteria on biomass is also common.

«CARBON DEBT»

It would seem that the solution to many environmental problems is associated with the rejection of mineral raw materials and the transition to biofuels... But not everything is so obvious. Undoubtedly, the combustion of biofuels does not emit toxic exhaust gases, and CO_2 emissions are significantly lower than when using coal or oil. There is even a notion of “carbon neutrality”, according to which the production of energy from plants does not increase the total amount of CO_2 in the ecosystem. But all these arguments are reasonably criticized.

If we talk about the use of firewood, then the idea of carbon neutrality collapses in the short term. CO_2 is instantly formed in the process of burning wood, and its

extraction from the atmosphere occurs when new trees grow for tens and hundreds of years. This time delay is commonly called “carbon debt,” and for European forests it can reach two hundred years.

DISADVANTAGES OF USING BIOFUELS

In Brazil, for the production of liquid biofuel in enormous quantities, natural forests are cut down for the benefit of sugar cane plantations and the territories occupied by food and fodder crops are reduced, which together causes great harm to the environment and increases food prices.

In addition, the transition to the use of biofuels requires technical modifications. Only so-called “Flex-Fuel” cars with a modified internal combustion engine and a flexible choice of fuel can work on bioethanol.

CONCLUSIONS

Perhaps the future lies behind biofuels... But so far we have found that the complete transition to fuel from plant and animal raw materials is associated with many difficulties

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